



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,951	07/13/2007	Shelley D. Minter	SLU 03-022 (4556.8)	2480
321	7590	09/23/2008	EXAMINER	
SENNIGER POWERS LLP 100 NORTH BROADWAY 17TH FLOOR ST LOUIS, MO 63102			KALAFUT, STEPHEN J	
			ART UNIT	PAPER NUMBER
			1795	
			NOTIFICATION DATE	DELIVERY MODE
			09/23/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,951	<b>Applicant(s)</b> MINTEER ET AL.	
	<b>Examiner</b> Stephen J. Kalafut	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,7,11,13,14,17,34,38,45,48,51,53,61,62,64,66,68 and 70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 61,62,64,66,68 and 70 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,11,13,14,17,34,38,45,48,51 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1795

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 45 (previously incorrectly listed as claim 46) and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Klitsner *et al.* (US 2002/0122972), for reasons of record.

Claims 1, 2, 4, 7, 11, 13, 17, 34 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Minter *et al.* (US 205/0095466), for reasons of record.

Claims 48 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klitsner *et al.*, for reasons of record.

Claims 61, 62, 64, 68 and 70, for reasons of record, are allowed.

Applicant's arguments filed 20 June 2008 have been fully considered but they are not persuasive.

Applicants argue that claim 45 requires an electron conductor, and that figure 2a of Klitsner *et al.* is unclear as to whether there is a sufficient amount of carbon present for the carbon-platinum layer for it to be considered an electron conductor. This is not persuasive, because both carbon and platinum are conductive materials, this conductivity being an inherent property of thereof. Whether anyone "considers" the layer to be an electron conductor is irrelevant. Moreover, applicants themselves define their term "electronic conductor" to

Art Unit: 1795

encompass carbon (paragraph 0050) and platinum (paragraph 0051). Furthermore, the claim does not recite any particular degree of conductivity.

Applicants argue that even if there is an electronic conductor present it would not necessarily have an irregular three dimensional topography capable of inducing convective flow of a fluid thereover. This is not persuasive because figure 2a shows cavities in the electrode surface that faces away from the Nafion membrane (66), and figure 2b shows a change of direction in the flow of oxygen gas, which would clearly be evidence of turbulence. No particular degree of irregularity or turbulence is claimed.

Applicants argue that claim 1, and thus all claims dependent thereon, require a substrate that is non-conducting. This is not persuasive because claim 1 does not include any language that requires the substrate to be non-conducting. Moreover, Minter *et al.*, in paragraph 0157, teaches that the electrodes of their fuel cell may both be deposited on an electrolyte membrane, which would serve as a substrate, or be located within a compartment without any membrane, in which case the compartment would be the substrate.

Applicants argue that Klitsner *et al.* do not describe a method for depositing carbon-supported platinum onto their Nafion membrane, and thus the electrode of claim 48 would not have necessarily and inevitably resulted from the Klitsner *et al.* disclosure. This is not persuasive because claim 48 and its parent claim 45 do not require any particular deposition method, and are not drawn to methods. The sole limitation claim 48 adds to claim 45 is a range of width for the electrode. Klitsner *et al.*, in paragraphs 0074 and 0075, disclose dimensions for their fuel cells, and thus give guidelines to the artisan for determining an optimal electrode size.

Art Unit: 1795

Applicants argue that Klitsner *et al.* does not disclose or suggest that it is desirable to optimize surface area from a reading of the reference, and that there is no cogent technical reasoning why such a surface area increase (from the geometric surface area of the electrode) would be obvious to a person of ordinary skill. Klitsner *et al.* discuss “current density” and “number of electrons” (paragraph 0047). The skilled artisan would be aware of the effect of surface area on reaction kinetics and in turn the amount of current that can be produced, and thus be motivated to optimize the surface area from a reading of Klitsner *et al.* Also, §103 does not require that any motivation be “technical” in nature.

Applicant’s arguments concerning the combination of Minter *et al.* and Klitsner *et al.* are found persuasive. The §103 rejection based on this combination is withdrawn. The rejection under §112 is also withdrawn.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1795


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286.

The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J. Kalafut/  
Primary Examiner, Art Unit 1795

<div><b>Application Number</b></div> <div></div>	<b>Application/Control No.</b>	<b>Applicant(s)/Patent under Reexamination</b>	
	10/598,951	MINTEER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen J. Kalafut	1795	